DOCUMENT RESUME

ED 307 626 CS 211 841

AUTHOR Davis, Ken
TITLE Toward a Hypertext on Writing.
PUB DATE 13 May 89
NOTE 11p.; Paper presented at the Annual Computers and Writing Conference (5th, Minneapolis, MN, May 13-14, 1989). For a companion article, see CS 211 840.
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Processes; *Database Management Systems; Educational Technology; Futures (of Society); Higher Education; *Information Retrieval; *Information Technology; *Information Transfer; Instructional Innovation; Technological Advancement; User Needs (Information); *Writing Instruction; Writing Processes
IDENTIFIERS *Hypertext

ABSTRACT

Hypertext can bring much to the teaching of writing. Specifically, it combines the product and process approaches to writing. What can be taught about writing, by teachers and textbooks, is what cannot be learned from reading written products. What can and must be taught is the process by which those products were produced. Because hypertext is nonlinear or multidimensional, because it can allow scrolling forward or backward in time, it can allow student writers to see "behind" finished documents to the processes that produced them. Hypertext thus has the potential--not achievable by normal, linear textbooks--to truly relate process and product. Hypertext can give students flexible, individualized access to various stages in the writing of various documents. Hypertext allows people to create textbooks that do well the only thing that writing instruction can do at all. (Twelve references are attached.) (MS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED307626

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Kenneth W. Davis

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Toward a Hypertext on Writing

Ken Davis

Indiana University-Purdue University at Indianapolis

Fifth Computers and Writing Conference

Minneapolis, Minnesota

May 13, 1989

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Good morning.

This is actually the second part of a two-part paper. The first part, presented at CCCC in Seattle in March, concerned the ways writing specialists can and should contribute to the making of better hypertext. Specifically, I suggested that we writing specialists can bring special knowledge to ongoing debates in the hypertext community about (1) screen design, (2) node size (the "card" format of HyperCard and other Xerox Notecards descendants, for example, versus the document format of Guide), (3) the labeling of links, (4) the problem of disorientation, (5) the use of hierarchy, and (6) the extent and nature of reader participation. In short, I urged the involvement of rhetoricians in creating what others have called "a rhetoric of hypertext."

This second paper takes the opposite road. I want to suggest today some of what hypertext can bring to the teaching of writing. Specifically, I want to suggest that hypertext makes possible a new kind of textbook on writing, one

CS211841

BEST COPY AVAILABLE

that for the first time truly combines so-called product and process approaches.

To make this talk a bit hypertextual, let me begin with a button--a question that surely won't need to be asked anywhere in a year or two. How many of you would appreciate, right now, a brief definition of the word hypertext?

[go on, or link to page 3]

Hypertext has been variously defined as "nonlinear" or "nonsequential" or "multidimensional" writing, but a more detailed definition might be "writing designed to be read--and perhaps added to--along many different paths, at the reader's choice."

Among printed materials, the first book approaching hypertext status was perhaps the Talmud, with its layers of law, commentary, and commentary on commentary, all linked together. Most reference books have hypertextual qualities: the Variorum Shakespeare, for example, with its elaborate footnote links, can be thought of as a kind of hypertext, as can the Britannica 3, with its extensive cross-referencing and its multiple means of access. The most hypertextual of novels is surely Finnegans Wake.

"Programmed" textbooks are another form of printed hypertext: students choose answers to multiple-choice questions and are directed--linked--to different pages depending on their choice. Similarly structured are the popular children's books (and a few for adults as well) in which readers, playing the

role of the main character, make choices that lead or link them into different story lines.

What the computer does for hypertext is increase greatly the speed and potential number of the links. But the difference between printed and computerized hypertext is more than quantitative. A good computer-based hypertext is a qualitatively different communications medium; it gives its reader the feel of moving effortlessly through a transparent information environment, like a fish in a sea of knowledge.

While versions of hypertext have existed on mainframe computers for two decades, only in the last two years have hypertext systems become commercially available for microcomputers. Best known is Apple's HyperCard, packaged with Macintosh computers, but a number of hypertext programs exist for IBM-compatible machines as well.

[link from page 2]

To explore what hypertext can offer to the teaching of writing, we first need to decide what about writing can be taught. Traditional composition instruction--what Dick Young calls the "current-traditional paradigm"--has assumed that almost everything about writing can be taught, and traditional textbooks, including some of mine, have reflected that assumption. But research and many teachers' experience suggest otherwise--that very little about writing can be taught directly. And so the emerging paradigm for the

teaching of writing has come to emphasize the role of practice, of--in James Moffett's words--learning to write by writing.

Frank Smith, the well-known reading specialist, began with that belief. Smith writes, "I thought that . . . we learn to write by writing until I reflected upon how little anyone writes in school, even the eager students, and how little feedback is provided. Errors may be corrected, but how often are correct models provided, especially beyond the level of words? How often is such feedback consulted, and acted upon, especially by those who need correction most? No one writes enough to learn more than a small part of what writers have to know . . ." Smith concludes that writers learn most of what they know not by instruction, not by practice, but by reading.

Smith's discussion is quoted in one of the most commonsensical and underrecognized books on writing, Stephen Krashen's Writing: Research, Theory, and Applications. Krashen summarizes much of the existing research on writing and proposes a theory to account for it. Krashen posits that most of a writer's fluency comes from extensive exposure to written language, through extensive self-motivated reading. From such reading, writers unconsciously "acquire" the code of written language, much as speakers acquire the code of a first or second spoken language.

But as Krashen points out, code acquisition, based as it is on finished documents, is only a necessary, not sufficient, condition for becoming a good writer. Writers also need to learn, directly and consciously, about the processes that produced those documents. Such information is not available

from the documents themselves, so it must come from practice or instruction. Without this knowledge, student writers, however fluent, may assume that prose should come directly from the writer's mind to the page, in its final, publishable form.

An aside (which, if this were a hypertext, I would put at the end of another link): I know absolutely that student writers can hold that assumption because I held it myself as an undergraduate. Because of extensive, self-motivated childhood reading, I had acquired enough fluency in written English to be able to procrastinate writing assignments until the night before they were due, then compose them at the typewriter in final form. In those days--not only before word processing but also before correcting typewriters--if I mistyped the first letter of a word, it was sometimes easier to think of another word than to erase.

That experience must be fairly universal, because I've since seen a cartoon (and this would be another link) in which a monk, in a scriptorium, has completed a beautifully illuminated letter B, filling fully a quarter of a page. He turns to a brother monk and asks, "What's another word for "Verily" that begins with a B?"

So (to backtrack along our links to the main argument), what can be taught about writing, by teachers and textbooks, is what cannot be learned from reading written products. What can and must be taught is the process by which those products were produced.

Hypertext, as a medium, seems uniquely suited for such instruction. In another underrecognized book, Literary Machines, Ted Nelson, who coined the term hypertext, shows us why. (I say underrecognized--here's another side link--because this important book, even Nelson's work as a whole, has been little cited in the flurry of recent writing about hypertext. In the international two-hour teleconference on hypermedia two weeks ago, Nelson's name was mentioned only once, and that was an aside during an interview.)

In Literary Machines (and I especially recommend it in its hypertext form, published by Owl International for the Macintosh), Nelson begins by discussing the design of almost all word-processing software. Almost all word processors have a rather complex relationship between keyboard and memory (both internal memory and storage) but a rather simple relationship between memory and screen. That is, as I write and edit at the keyboard, my computer constantly shifts my emerging document around in memory--continually reconstructing it there--to reflect the additions and deletions I make. The screen, on the other hand, is a rather straightforward, linear depiction of the current state of the document in memory. Unless I have made backups, previous versions of my document no longer exist.

Nelson argues that such design, while conserving storage space, fails to take advantage of the computer's great potential. Nelson proposes--and is, I understand, developing--a word-processing design that has a rather simple relationship between keyboard and memory but a rather complex relationship between memory and screen. In Nelson's design, keystrokes simply are recorded linearly in memory; a straight memory dump would reveal simply a log of the

writer's keyboard activity, something like the log file that some of us create during sessions with our communications programs. What Nelson would have the computer do is use that log to construct, on the screen, the current state of the document--or any previous state. In a Nelson word-processor, one can scroll not only up and down in a document, but also forward and backward in time, through its earlier and later versions.

The point of Nelson's design is to solve one of hypertext's most perplexing problems: how to preserve an individual author's work--and the rights to it--while allowing others to link it usefully to their own work. In Nelson's proposed global hypertext system, called "Xanadu," you are free to revise my document any way you wish--linking it to, or even including it in, your own work. But whenever I, or anyone else, wants to see what my document looked liked before you started monkeying with it, the computer will display it for us. And whenever anyone accesses your version of my document, the computer will credit me with my share of the royalties.

Well, you see where I'm leading. Because hypertext is nonlinear or multidimensional, because it can allow scrolling forward or backward in time, it can allow student writers to see "behind" finished documents to the processes that produced them. Hypertext thus has the potential--not achievable by normal, linear textbooks--to truly relate process and product. I am currently using Neil Larson's MaxThink, Houdini, and PC-Hypertext to write such a hypertext, with the goal of giving students flexible, individualized access to various stages in the writing of various documents. Without Ted Nelson's word processor design, I can't capture every keystroke of

the writers whose work I'm using, so I'm relying on multiple drafts that my students have saved for me. My hypertext document allows students to jump back and forth between the same passage in successive drafts, and also to jump to my annotations of the changes.

In my proposal for this conference, I promised examples from this work in progress. I confess my failure at not having them to show you yet. I'm discovering, as a number of people have, what a tedious job the writing of hypertext is, even with good authoring software. There is enormous cognitive overload in creating a multidimensional network of nodes and links--and making that network seem to the reader like an easily navigable hierarchy.

But I think the job is worth doing. Hypertext allows us to create textbooks that do well the only thing that writing instruction can do at all. I welcome more creative and patient minds than mine to join me in that effort.

TOWARD A HYPERTEXT ON WRITING: A BRIEF ANNOTATED BIBLIOGRAPHY

Ken Davis
Indiana University-Purdue University at Indianapolis
(Phone: 317-274-0084; BITNET address: IMMX100@INDYCMS)

May 1989

Ambron, Sueann, and Kristina Hooper, eds. Interactive Multimedia: Visions of Multimedia for Developers, Educators, and Information Providers. Redmond, Wash.: Microsoft Press, 1988. (A valuable article collection, commissioned by Apple, on applications of hypertext and other "hypermedia.")

Bush, Vannevar. "As We May Think." Atlantic Monthly July 1945: 101-08. (A visionary article by Truman's science advisor, describing a kind of hypertext in terms of the technology of the 1940s.)

Byte October 1988. (A thematic issue on hypertext, including a partial directory of available software and ongoing research efforts.)

Conklin, Jeff. "Hypertext: An Introduction and Survey." Computer September 1987: 17-41. (Perhaps the most useful introductory article on hypertext, accessible to lay readers but quite detailed in its exploration.)

Engelbart, Douglas C. "A Conceptual Framework for the Augmentation of Man's Intellect." Vistas in Information Handling. Ed. P. W. Howerton and D. C. Weeks. Vol. 1. Washington: Spartan Books, 1963. 1-29. (An important conceptual piece, by one of the founding fathers of hypertext, on the relations among people, computers, and information.)

"Hypertext Software Helps Users Weave Complex Data Webs." PC Week March 1, 1988: 42. (A good one-page introduction to hypertext.)

Krashen, Stephen D. Writing: Research, Theory, and Applications. Oxford: Pergamon Institute of Education, 1984. (A brief, underrecognized book that proposes a theory of writing instruction within which hypertext might play an important role.)

Larson, Neil. PC-Hypertext introduction program. Kensington, Calif.: MaxThink, 1988. (A PC-compatible "shareware" disk that combines a demonstration of hypertext, a discussion of hypertext, and an elementary hypertext-authoring program; available for $5.95 from MaxThink, 44 Rincon Rd., Kensington, CA 94707, or free on the PC-Hypertext BBS, 415-540-6114.)

(continued on other side)

Nelson, Ted. Computer Lib/Dream Machines. Rev. ed. Redmond, Wash.: Microsoft Press, 1987. (A major book--really two books--on hypertext and computers in general, by the man who coined the term hypertext.)

---. Literary Machines. 1st hypertext ed. Bellevue, Wash.: Owl International, 1987. (The hypertext version of an important book on hypertext; available on an 800K double-sided disk for the Macintosh--HyperCard not needed--for $19.95, plus $2.50 shipping, from Owl International, 14218 NE 21st St., Bellevue, WA 98007.)

---. "A New Home for the Mind." Datamation March 1982: 169-80. (An adaptation from Literary Machines, providing an excellent short treatment of Nelson's wide-sweeping vision.)

Tchudi, Stephen. "Invisible Thinking and the Hypertext." English Journal January 1988: 22-30. (A rich exploration of the implications of hypertext for English classrooms.)